

I claim:

1. A feedstock liquid with a viscosity from 4.0×10^{-2} to 6.5×10^{-2} Pa·s at 15°C, for production of ammonium diuranate particles.
2. The feedstock liquid according to claim 1, wherein the feedstock liquid comprises uranyl nitrate, tetrahydrofurfuryl alcohol, and polyvinyl alcohol.
3. A method of preparing a feedstock liquid used for production of ammonium diuranate particles, which comprises mixing a uranyl nitrate solution and tetrahydrofurfuryl alcohol to produce a uranyl nitrate mixture, dissolving polyvinyl alcohol in water to produce an aqueous polyvinyl alcohol solution, mixing the aqueous polyvinyl alcohol solution with tetrahydrofurfuryl alcohol to produce a polyvinyl alcohol solution, and mixing the uranyl nitrate mixture with the polyvinyl alcohol solution.
4. The method according to claim 3, wherein a total amount of the aqueous polyvinyl alcohol solution in the feedstock liquid is 15 to 20% by volume based on an entire volume of the feedstock liquid.
5. The method according to claim 3 or 4, wherein a total amount of tetrahydrofurfuryl alcohol in the feedstock liquid is 40 to 50% by volume based on an entire volume of the feedstock liquid.

6. The method according to any one of claims 3-5, wherein the mixing of the uranyl nitrate mixture with the polyvinyl alcohol solution is carried out under stirring, which is followed by degassing and adjusting the volume by adding pure water.

7. The method according to any one of claims 3-6, wherein the uranium content in the feedstock liquid is from 0.6 to 0.9 mol-U/L.

8. The method according to any one of claims 3-7, wherein when the polyvinyl alcohol solution is prepared by mixing the aqueous polyvinyl alcohol solution with tetrahydrofurfuryl alcohol, tetrahydrofurfuryl alcohol is added before a temperature of the aqueous polyvinyl alcohol decreases to 50°C at the lowest.

9. A method of preparing a feedstock liquid for the production of ammonium diuranate particles, the feedstock liquid including uranyl nitrate, an aqueous polyvinyl alcohol solution, and tetrahydrofurfuryl alcohol, wherein the polyvinyl alcohol is weighed when it is dry.

10. The method according to claim 9, wherein the dry polyvinyl alcohol is made by heating a polyvinyl alcohol that has absorbed moisture.

11. The method according to the claim 9, wherein the dry polyvinyl alcohol is a polyvinyl alcohol that has been stored with a desiccant.

12. A method of preparing a uranyl nitrate solution used in preparing a feedstock liquid for production of ammonium diuranate particles, which comprises reacting nitric acid with a uranium oxide so that the molar ratio (A/B) of nitric acid (A) to uranium (B) is from 2.1 to 2.6.

13. The method according to claim 12, wherein the reaction between nitric acid and the uranium oxide is carried out at a temperature from 70 to 110°C.

14. A method according to claim 12 or 13, further comprising a step in which NO_x gas produced in the reaction is treated chemically.

15. A method of preparing a polyvinyl alcohol solution used in preparing a feedstock liquid for production of ammonium diuranate particles, which comprises mixing polyvinyl alcohol and water to prepare from 6 to 9 mass% of an aqueous polyvinyl alcohol solution, and mixing the aqueous polyvinyl alcohol solution with tetrahydrofurfuryl alcohol.

16. The method according to claim 15, wherein the polyvinyl alcohol is dissolved in water while the polyvinyl alcohol and water are being heated to a temperature of at least 75°C.

17. The method according to claim 15 or 16, wherein from 1 to 50% by volume of tetrahydrofurfuryl alcohol based on an entire volume of tetrahydrofurfuryl alcohol included in the feedstock liquid is mixed with the aqueous polyvinyl alcohol solution at a temperature of at least 50°C.